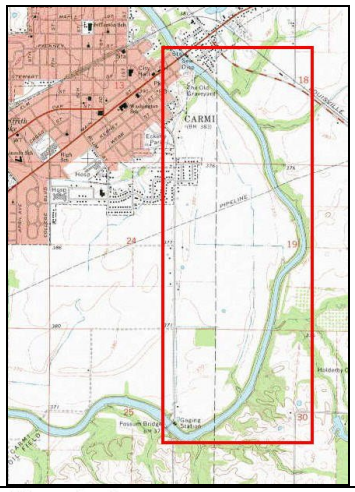
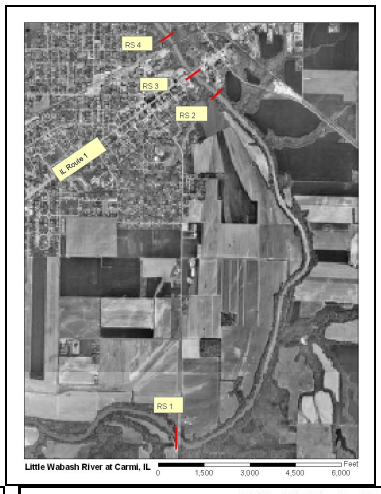
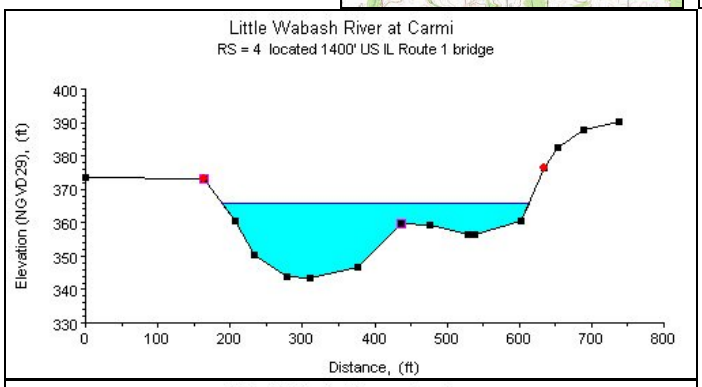
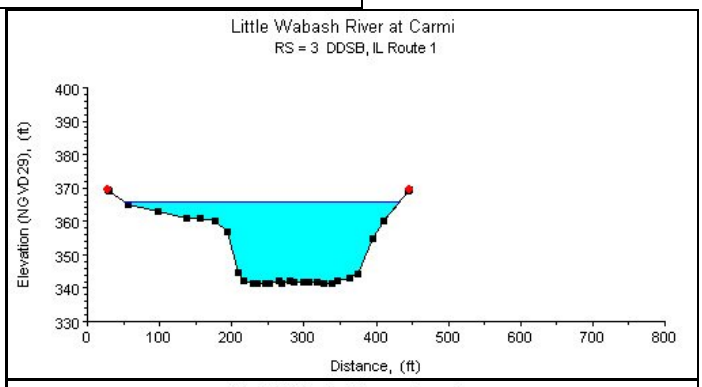
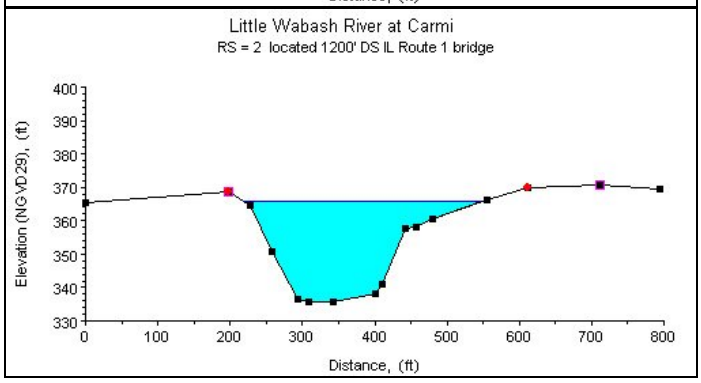
Little Wabash River at Carmi, IL

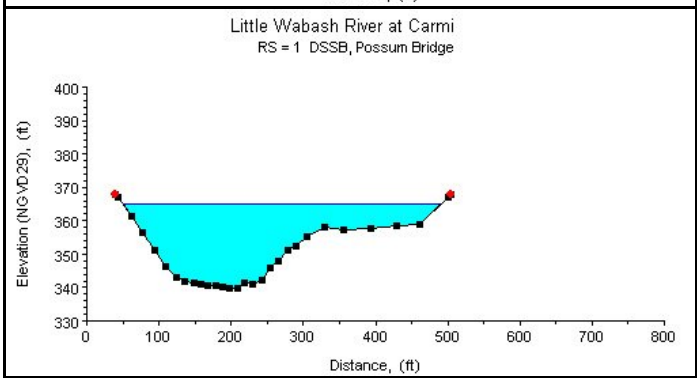












Study Reach.--The channel reach under consideration is natural and meandering. The study reach selected, approximately 2.9 miles long, extends from Main Street Bridge in Carmi to Possum Bridge, as shown in quadrangle map on the top left. Four surveyed cross sections (surveyed by the Illinois Department of Transportation (survey date unknown) and the U.S. Geological Survey in April 1993) are available at this site for evaluating the channel geometries (see plots above). The channel alignment, approximate variations in channel width and bank conditions, and locations of cross sections are shown in the aerial photo on the top right.

Gage Location.--Lat 38°03'40", long 88°09'35", in NW1/4 SE1/4 sec.25, T.5S., R.9E., White County, Hydrologic Unit 05120114, on right bank at downstream side of Possum Bridge, 2.3 mi south of Main Street Bridge in Carmi and 7.8 mi downstream from Skillet Fork. The base gage can be reached by driving about 1-3/4 mi south on oiled road extension of Church Street in Carmi. The auxiliary gage is located at lat 38 05 32 , long 88 09 22 , in NE1/4 sec. 13, T.5 S., R. 9

E., White County, at the Main Street Bridge in Carmi, and 5.0 mi downstream from Skillet Fork. The USGS streamgage-station number for the base gage is 03381500.

Drainage Area.--3,102 sq mi.

Gage Datum and Elevations of Reference Points.--This is a slope station site where the auxiliary gage is located at Main Street bridge 2.8 mi upstream from the base gage. Datum of both the base and auxiliary gages is 339.91 ft. A wire-weight gage (WWG) is located on the downstream handrail of Main Street bridge at the upstream auxiliary station. Prior to the installation of the auxiliary station WWG, a reference point (RP-9) was used to measure stage. RP-9 is the head of a bolt located 30 ft from the gagehouse on the downstream side of Main Street bridge, elevation=385.249 ft. A WWG is attached to the downstream side of Possum Bridge at the base gage. All elevations are in NGVD 1929 convention.

Stage, Discharge Measurements, and Computed n-Values.--Stage and discharge data for the n-value studies were retrieved from measured discharge records for this slope station site. Water surface elevations were measured upstream at RP-9 or the WWG and at the downstream WWG before and after each discharge measurement. Discharge measurements were made using the conventional current-meter method. The computed n-values are listed in the following table. Whenever possible, the computed n-values are associated with a photo taken at the time of the measurement. The photos are arranged from low stage to high stage in order to illustrate contributing factors of n-value at a particular stage.

Date of Observation	Discharge (ft^3/s)	Average Cross Section Area (ft^2)	Hydraulic Radius (ft)	Mean Velocity (ft/s)	Slope	Coefficient of Roughness *n*
2/18/1992	1560.0	862.5	5.44	2.15	0.000079	0.034
7/16/1997	1940.0	1092.0	6.50	2.02	0.000077	0.036
8/28/1989	2470.0	1429.2	7.96	1.88	0.000076	0.039
12/13/1974	3890.0	1984.6	10.06	2.05	0.000081	0.038
2/21/2002	4610.0	2063.8	10.34	2.33	0.000091	0.035
1/6/1992	4740.0	2203.9	10.81	2.23	0.000079	0.035
4/25/1990	5810.0	2825.2	12.36	2.10	0.000075	0.038
11/18/1992	6530.0	3256.0	11.34	2.02	0.000077	0.036
1/6/1988	8310.0	4055.7	11.94	2.05	0.000088	0.039
6/17/2003	9140.0	4725.4	12.76	1.93	0.000093	0.043
1/14/1975	10200.0	5647.9	13.97	1.81	0.000100	0.050
6/2/2004	11800.0	5812.8	14.19	2.03	0.000095	0.043
6/30/2000	12100.0	5889.6	14.28	2.06	0.000104	0.045
2/4/1997	13100.0	6924.6	14.08	1.93	0.000097	0.044

03381500 Little Wabash River at Carmi, IL 07/08/05
Looking Downstream from Auxgage

03381500 Little Wabash River at Carmi, IL 07/08/05
Looking Upstream from Auxgage

03381500 Little Wabash River at Carmi, IL 07/08/05
Looking Downstream from gage

03381500 Little Wabash River at Carmi, IL 07/08/05
Looking Upstream from gage

03381500 Little Wabash River at Carmi, IL
Looking Downstream

03381500 Little Wabash River at Carmi Auxillary, IL
Looking Downstream

03381500 Little Wabash River at Carmi, IL
Looking Downstream

Description of Channel.--This stream is a natural channel. The bed material is composed of smooth rock and gravel, free of vegetation. The bank face is a clay and sand mixture, covered with exposed tree roots, brush and weeds. Overflow occurs at about 30 ft of stage. Measurements for this study did not exceed 30 ft of stage. The study reach can be described as having a slight meander.

Floods.--Maximum stage known 36.70 feet May 13, 1961. Flood of January 1937, 36.23 feet. Flood of May 25, 1943, 34.20 ft. Flood of Jan. 11, 1950, 35.23 ft. Flood of May 23, 1990, 34.38 ft.

Estimated n-Values using Cowan s Approach.--0.047